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Review Article

MALAYSIAN ECONOMIC TRANSFORMATION PROGRAMME (ETP) AND PATTERN OF JOB FLOWS IN MANUFACTURING SECTOR: 2005-2015

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Abstract:
Economic transformation is vital for a country. In addition to helping to boost the economy, economic restructuring also affects market workers especially in terms of unemployment. However, the unemployment rate in Malaysia at an average of 3 per cent annually reflects that the restructuring has not to affect labour. Therefore, this study aims to study the pattern of job flow due to economic transformation undertaken by the Malaysian government in 2010. Descriptive analysis shows that there exists job reallocation in the Malaysian manufacturing sector from 2005 to 2015, and it was dominated by the pattern of job creation rather than job destruction, for the whole manufacturing sector or at the technological level. Based on the results of this study, this paper proposes the Malaysian government and policymakers to consider other methods, as well as the unemployment rate to analyse the labour market performance. This study proposes the use of job flow method as one of the labour market indicators in the economy.

Keywords: Job creation, job destruction, job reallocation, economic restructuring, technology level

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Malaysian Economic Transformation Program in Manufacturing Sector and Labour Market

Economic Transformation Programme (ETP) is one of the significant Malaysian economic structural programs. It has been shaped in the context of twofold strategies, namely to spur Malaysian economic development and to create a competitive economic landscape. For the first purpose; to stimulate economic growth, the ETP has identified twelve (12) major New Key Economic Area (NKEA) including the Malaysian manufacturing sector, which details the main economic sectors to skyrocket Malaysian economic growth. While the second purpose; realization of a competitive economic landscape aims to expand business opportunities. Both strategies of ETP are achieved through the encouragement of innovation and high value-added output in the production chain, it is targeting increasing in labour participation by at least 60% of the current labour participation, whereby it requires semi-skilled to high–skilled labour forces (Economic Report, 2012).

Several industries in Malaysian manufacturing sector such as industries of electric and electronic, aerospace and chemical and petroleum has been acknowledged in the Economic Transformation Program (ETP), as the key-driven industries to increase the production of the manufacturing sector, directly contribute to the Gross Domestic Product (GDP) growth. Historically, Malaysia's manufacturing sector has undergone several structural transformations since Malaysia achieved independence. In the early stages of independence, the manufacturing sector strategy was focused on the import substitution industry. However, the strategy changed with the country's economic progress. Malaysia's manufacturing sector strategy is now focusing on high-tech industries (Table 1). The restructuring of the manufacturing sector was undertaken to make this sector competitive in global terms.

Table 1: Development Phase of Malaysian Manufacturing Sector (1957-2020)

Phase	Strategy	Details
1	Import substitution industry (1957-1970)	Consumer goods Domestic market-based
2	Export orientation industry (1971-1980)	Export market Free-trade zone Electronic and textile for export
3	Import-Orientation industry Phase II (1981-1985) Export-Orientation Industry Phase II (1986-1995) Advanced-Technology Industry (1996-2020)	Domestic heavy industry Restructuring of the manufacturing sector Computer and science technology-based

Source: Adapted from Seventh Malaysian Plan, 1996-2000, page: 279-317 and Sixth Malaysian Plan, 1991-1995, page: 139-170.

As can be seen in Table 1, the Malaysian manufacturing sector has been through several series of transformation since 1957. Apart from supporting the growth and expansion of the economy, the change in the structure of the sector also contributed to the change in the labour market (Hoffman, Bićanić, & Vukoja, 2012). One of the contributions of structural change in the Malaysian manufacturing sector to the Malaysian labour market is the job flow, in which job flow comprises of creation, destruction and reallocation of the jobs (Faggio & Konings, 1999, 2003).

According to the theory of restructuring Lewis (Lewis, 1957), when the structural change occurred in one sector/country, the job flow of the sector/country also changed. At the beginning of

the restructuring process, job destruction exceeds job creation, causing job reallocation to take place only within the industry of the respective sector. While, when the restructuring process approaching the ending phase, job creation exceeds the job destruction, resulting in job reallocation occurring inter-industry in the respective sector.

Nevertheless, in the recent study by Faggio and Konings (2003), explain that when the restructuring occurred, the job creation exceeded job destruction at the early phase of the restructuring process. In the early stages of transformation, there was a new private firm and some of the existing firms adjust their labour market (Basu et al., 1997 & Estrin and Svenjar, 1998). It contributors to job creation early in the transformation. On the other hand, when the restructuring process approaching ending phase, the job destruction exceeded job creation due to the existing firm's failure to survive in the market.

However, the performance of the Malaysian labour market is not measured based on the job flow, measured based on the unemployment rate and employment growth. While on the contrary, in recent years, the information of job flow has begun to get attention among economists in measuring labour market performance. This is following some important criteria of job flow, explain labour market more accurate than an existing indicator. According to a study by Davis and Hatiwanger (1990), the information of job flow explains the dynamics of labour market more accurate than the information of employment growth, based on the studied in US manufacturing sector. The information such as in term of employment growth, if the rate of employment growth is 5%, it explains the positive growth in employment as much as 5%. On the other hand, in term of job flow, if job reallocation rate is 5%, this could be a result of 8% job creation minus 3% job destruction. Furthermore, the information about the restructuring phase is also obtained from the job flow (Camacho-Cabiscol, 2003; Konings, 1995).

Unfortunately, there is hardly any official reports unveil the pattern of job flows in the Malaysian manufacturing sector, neither in the Malaysian economy. The point of interest in this research is to analyze the pattern of job flow from using the formula introduced by Davis & Haltiwanger (1990). The lack of a reliable pattern of job flow hinders policymakers, researchers and manufacturing players from doing more accurate forecast on the trend of job flow and the restructuring phase in this manufacturing sector. Therefore, this research will fulfil the gap by examining the pattern of job flow in the Malaysian manufacturing sector in relation to the restructuring process, specifically Malaysian Economics Transformation Program that has been undergoing by this sector.

This research is organized as follows: the next section is the summary of the literature review on job flows that have been done. The third section explains the concept and data of job flow including the formula, also methodology used in this research. The fourth section comprised the results and discussion of job flow obtained in this paper with previous evidence in other countries. The fifth section includes summary and conclusion of this research.

LITERATURE REVIEW

This section discusses the related literature review related to this research. The studies of job creation, job destruction and job reallocation are the studies related to the job flows. Furthermore, recent studies on job flow often relate job flows to expansion and contraction of firms caused by the economic cycle including economic crisis. In which, the changes in firms size (caused by the economic cycle) is the factor of job flows either job creation, job destruction or job reallocation. One of the studies has been done in America and has been proven that during the Global Economic Crisis, firms in the manufacturing sector have responded to the crisis through contraction of firms, resulted in the job destruction. This is to ensure that firms able to survive in the circumstance (Haltiwanger, Scarpetta, & Schweiger, 2014).

Other than the economic cyclical as a factor causing job flows, the structural changes in the economy has also resulted in job flows, either job creation, job destruction or job reallocation. Most of the recent studies on job flows has been done in the countries that go through the structuring process. The studies have agreed that the economic restructuring process covers three (3) phase, which is affecting differentiated job flows. The initial stage of economic restructuring illustrates the magnitude of job creation is higher than job destruction. As a result, job reallocation shows an upward pattern, where it is dominated by the pattern of job creation rather than the pattern of job destruction. At the middle to peak stage of the restructuring process, the magnitude of job creation equates to the magnitude of job destruction, caused the job reallocation pattern is stable as the vector of job creation and destruction are almost equal. At the final stage of the restructuring process, the magnitude of job destruction exceeds the magnitude of job creation, resulting in a downward pattern of job reallocation. This shows that the direction of job destruction is more dominating than job creation (Bilsen & Konings, 1998).

Bojnee and Konings (1999) conducted a study in Slovenia using descriptive method. This study found that at the beginning of the transition process of the economy, the magnitude of job creation was found to be lower than at the end of the process. This study suggests that at the beginning of the structuring process, the rate of job creation was low due to the decline in the demand for labour by the state-owned firms.

Complemented by the result of a study in Estonia by Haltiwanger & Vodopivec (2002). The study aims to access the magnitude pattern of job flow during the transition process. The result from the descriptive analysis shows that during the initial phase of restructuring firm, the magnitude pattern of job creation was lower than at the ending phase.

A study by Samsi, A., et. al. (2018) have analysed the pattern of job creation focusing on the high- and low-technology level sub-sectors in the Malaysian manufacturing sector. They compare the job creation pattern between the period before the Malaysia Economic Transformation Programme (ETP) (2005-2010) and that after ETP (2010-2015). Base on the descriptive method they found that the high- and low-technology level sub-sectors exhibited different patterns in job creation. Before the ETP, job creation for low-technology level is most fluctuating compared to the high technology level. In contrast, in the period after the transformation program was introduced (2010-2015), the job creation pattern in the high technology industrial sub-sector was more dynamic, whereas in the low technology sub-sector it was more stable.

Further, a study has been conducted during the economic restructuring process in Ukraine. This study aimed to investigate the pattern of job flows as well as the factors affecting job creation over the period of restructuring. The result of this study found that along the restructuring period, the magnitude of job destruction was greater than the magnitude of job creation. The rate of job destruction increased consistently while the rate of job creation decreased (Stavrunova, 2001).

Jackson and Mach (2009) have done a study in Poland from 1988 to 1998 period of restructuring economy. The study used descriptive analysis method to analyse the pattern of job creation in term of magnitude. The results showed that the magnitude of job creation in Poland at the early stage of the restructuring process was higher than at the end of the stage. During the beginning of the restructuring process, there was an increase in demand for labour by private firms.

In conclusion, from the review above, the pattern of job flows was analyzed using the method of descriptive analysis. The results show various finding.

DATA AND METHODOLOGY

This section described the data used in this study to derive the pattern of job flows in the Malaysian manufacturing sector. Besides that, this research used the calculated rate of job creation, job destruction and job reallocation to plot the graph and illustrated the pattern of job flows in the Malaysian manufacturing sector using the line graph.

The data collected was a set of secondary data obtained from the Annual Manufacturing Sector Survey Report released by the Malaysian Department of Statistics, was also used as it is presented the performance of major indicators of the Malaysian manufacturing sector. The Economic Report released by the Bank Negara Malaysia was also used in this study, aims to ensure that the data used is accurate. The cross-section data and time-series data were combined to form a set of panel data. Panel data used in this study took into account 54 industries groups in Malaysia's manufacturing sector for a period of 11 years, from 2005 to 2015. The selection of industry groups is based on the Malaysian Industrial Standard Classification (MSIC) 2010.

Methodology

The data obtained are analyzed descriptively. The rate of job creation, job destruction and job reallocation is calculated first using the formula that has been introduced by (Davis, Haltiwanger, & Schuh, 1998).

The calculation of job creation using the formula introduced is as follows:

Step 1: calculating labour change in sub-sector of Malaysian manufacturing sector

$x_{it} = [(E_{it} + E_{it-1})]$ [1]

Step 2: calculate sector growth of Malaysian manufacturing sector

$g_{st} = [(E_{st} - E_{st-1}) / x_{st}) \times 100]$ [2]

Step 3: calculate job creation (JC) when the change in the number of labour is divided by sector growth.

$$JC_{st} = \sum_{+st} \frac{x_{it}}{g_{st}} \quad [3]$$

where E represents the number of employment, JC represents job creation, x_i represents the number of employment at the sub-sector level, X_s refers to total employment at sector level and g_s is sector growth, t is the current year, s is sector, i is sub-sectors and t-1 is one year earlier than the current year.

The term definition of this study, equation [3] is a positive value of labour change that represents job creation, while the value of the job destruction is the negative value of equation [3] as shown later:

Step 4: calculation of Job Destruction (JD)

JD = -JC

$$JD_{st} = \sum_{-st} \frac{x_{it}}{g_{st}} \quad [4]$$

Whereas job reallocation (JR) is calculated by summing the value of job creation and job destruction represented by equations [3] and equation [4], as follows:

Step 5: calculation of Job Reallocation (JR)

$JR_{st} = JC_{st} + |JD_{st}|$ [5]

This research used the calculated rate of job flows obtained to plot the graph and illustrated the pattern of job flow in the Malaysian manufacturing sector using the line graph. The industries in the manufacturing sector are grouped into four groups of technology level, namely high technology, medium-high technology, medium-low technology and low technology as categorized by OECD. Followed by the pattern of job flow for overall Malaysian manufacturing sector from the year 2005 to 2015. The analysis of this pattern is crucial as it can show whether job reallocation is dominating by job creation or job destruction in the industry.

RESULT AND DISCUSSION

This section will discuss the pattern of job flow (job creation, destruction and reallocation) by technology level in the Malaysian manufacturing sector from the year 2005 to 2015. First, the pattern of job flows for High technology group did not show significant changes from the year 2005 to 2015, except in the year 2011. In the year 2011, job reallocation increased significantly although there are declining in job creation and destruction. This implies that job reallocation in this group is not affected by either job creation or job destruction. This is due to the fact that high technology industries such as aircraft and spacecraft, office, accounting and computing machinery and radio, TV and communication equipment require enormous assets and highly skilled (Silva & Lima, 2017; Brynjolfsson & McAfee, 2014) and specialized labour in the field (Šipilova, 2015; Cortright & Mayer, 2001;). Hence, job reallocation remains regardless of the changes in either job creation or job destruction.

In contrast to the three industries namely high-medium technology industries, low-medium technology industries and low technology industries, job reallocation is seen to be influenced by job creation but not affected by job destruction. The finding of this study is in line with the previous studies such as (Kerr, Wittenberg & Arrow, 2014; Bilsen & Konings, 1998) where job creation has greatly affected the job reallocation. As the more jobs created there are more labour able to work, resulting in the job reallocation by according to the field of specialization. With specialization, it will be able to increase output and lead to the nation's development.

On the other hand, the pattern of job flows for high technology, medium-high technology and medium-low technology has shown a significant change in the year 2011 due to the implementation of the Economic Transformation Programme (ETP) at the end of the year 2010. The ETP has been implemented with the purpose of expelling Malaysia from the middle-income trap or liquidity-trap. The ETP is led by innovation and advanced technology in the production process. However, the low technology industries such as food product, beverages and tobacco, textiles, textiles products, leather and footwear and other manufacturing did not show immediate changes after the ETP. The pattern of job flows in the low technology industries showed significant changes occurred in the year 2009 and 2010. From the year 2008 to 2010, was a period of Malaysian economic recovery.

Hence, various economic stimulus packages including accelerated fiscal incentives, easing of aggressive monetary policy and the introduction of comprehensive measures to ensure access to sustainable financing has contributed to economic stabilization (BNM, 2009). As the low technology industries focus on the production of necessary goods such as food product, beverages and tobacco, textiles products and footwear and other manufacturing, thus the immediate impact can be seen in the pattern of job flows in this group.

Based on the analysis of the pattern of job flows in these four (4) technology group that has been discussed based on the Figure 1, in summary, the pattern of job flows for overall Malaysian manufacturing sector from the year 2005-2015 is shown in Figure 2, one can conclude that job reallocation is influenced by job creation in the overall Malaysian manufacturing sector from

the year 2005 to 2015. The significant changes occurred after the ETP is due to the immediate impact of ETP implementation and during the period of 2009 to 2010 is due to the Malaysian recovery phase from the economic crisis.

There are some assumptions that often neglected in the previous studies of job flows that is, first, job reallocation is persistent or continuous. On average, job reallocation is estimated that three-quarters of job reallocation is dominated by job destruction that occurred at least twice the average period of economic recession. While, half of the job creation is ongoing for at least two years (Schuh & Triest, 1998).

However, this study found that job reallocation in the overall Malaysian manufacturing sector is dominated by job creation persistently for the period of study. Hence, in the case of the Malaysian manufacturing sector, the pattern of job flows is not supporting this assumption.

Figure 1: Pattern of job flow by technology level in Malaysian manufacturing sector from year 2005 to 2015

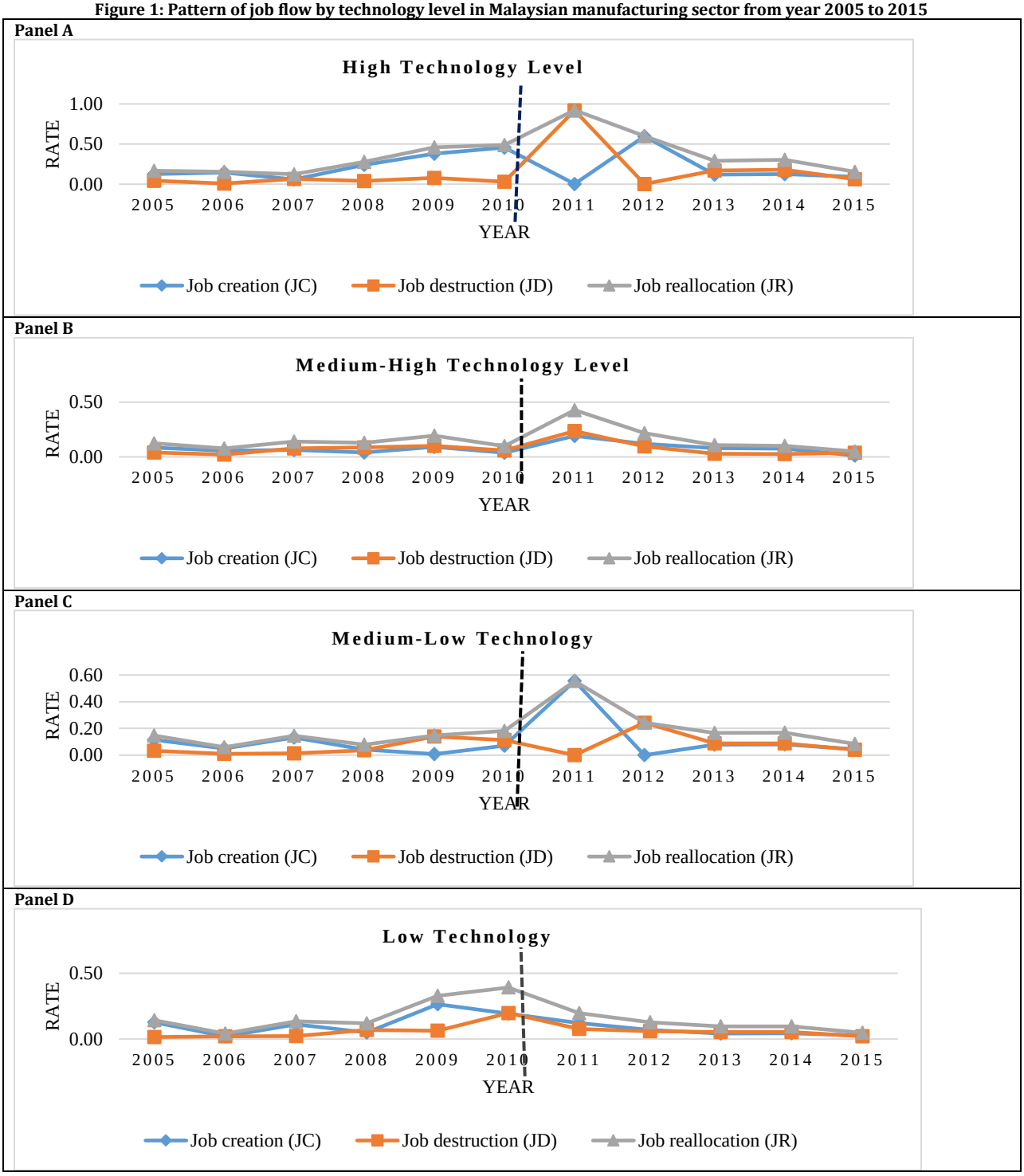
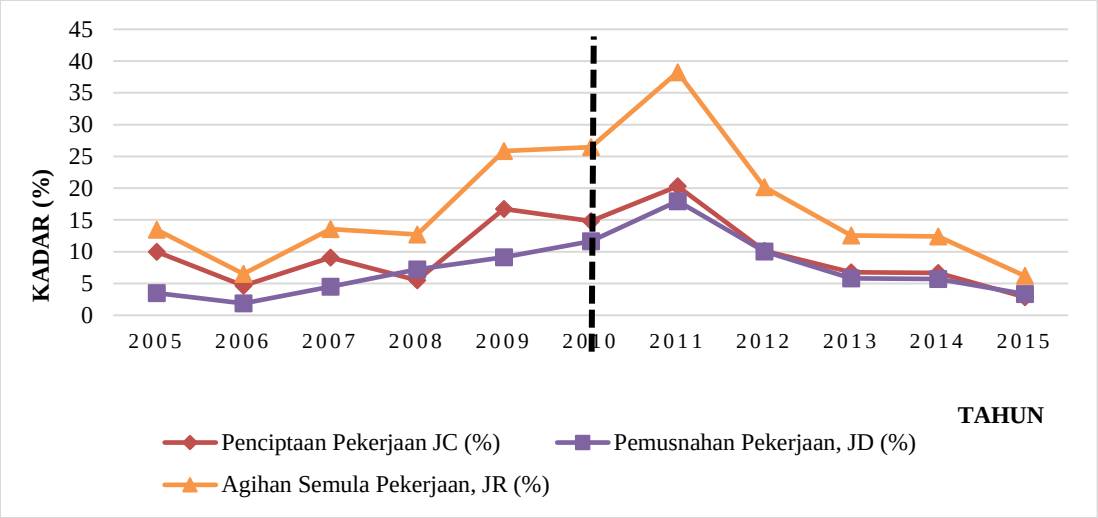


Figure 2: Pattern of overall job flow in the Malaysian manufacturing sector from the year 2005 to 2015



Next is the assumption that there is an inequality of job flow across the establishment or industries in a sector. According to the traditional macroeconomic model, it is assumed that establishments nor industries in a sector either expand or contract simultaneously (Schuh & Triest, 1998). However, the analysis of the pattern of job flow in Malaysian manufacturing sector from the year 2005 to 2015, the pattern of job creation was higher than the pattern of job destruction, resulting in a pattern of job reallocation is influenced by the pattern of job creation. This proves the traditional assumption is true, which is there is inequality in the job flows across establishment nor industries in a sector.

SUMMARY AND CONCLUSION

This study has found that there is the reallocation of job in the Malaysian manufacturing sector from the year 2005 to 2015, and it is dominated by the pattern of job creation than job destruction, as can be seen, either in the whole manufacturing sector or according to the technology level. The descriptive analysis found that there are significant changes occurred after the Economic transformation Program (ETP) is implemented in the third quarter of the year 2010. This is due to the immediate impact as well as the economic recovery phase from the year 2008 to 2009. The ETP and other economic stimulus incentives underpinned by innovation and advanced technology have resulted in many irrelevant to the nation's development being destructed as well as resulting in increasing unemployment. However, statistical reports show that the unemployment rate from 2010 to 2015 does not reflect the actual situation of Malaysian unemployment.

Based on the results of this research and the interaction between the results of this study and previous studies, this paper proposes the Malaysian government and policymakers to consider other methods, besides the unemployment rate to analyze the labour market performance. This study suggests the use of job flow method as one of the labour market indicators in the economy.

The theory of restructuring by Lewis suggests that the process of economic restructuring leads to massive job creation and job destruction. This theory is supported by a number of previous studies that adding an open economy system, heterogeneity and fluctuation in the labour market can be seen crystal clear through the analysis of job flow compared to the traditional employment growth or unemployment rate indicators. Therefore, it is important for the Malaysian government and policymakers to consider this technique as a labour market indicator as a complement to the existing unemployment rate and employment growth rate indicators. Thus, with job flow and unemployment rate used together in the analysis of labour market efficiency, policymaker and Malaysian government acquire useful and accurate information on the adjustment process between job and labour force besides the uncertainty in labour market in term of demand and supply of labour. It is important to the Malaysian government to evaluate the effectiveness of the existing indicators and policy regarding the labour market to ensure continuous improvement to meet the needs of the labour markets.

Agreed by Faggio and Konings (2003), suggesting that the job flow is able to identify clearly the turbulent in the labour market, which cannot be identified by macroeconomics information such as the unemployment rate. In addition, according to Banarjee (2014), the job flow also provides more beneficial information to interpret the labour market in a country than the unemployment rate. This information is useful to identify the labour movement in the economy, as well as identifying the dynamics of the labour market.

Apart from being an alternative in measuring the labour market efficiency, according to Haltiwanger et al (2003) job flow could also provide information on the level of development of an economic transformation process. This information is obtained by analyzing the surplus of jobs by comparing the magnitude of job creation and job destruction. If the magnitude of job creation is greater than job destruction, the transformation process is at the initial stage, moving forward the final stage of the transformation process, the magnitude of job destruction is greater than job creation.

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